Physics of Metals and Metallography 2011 vol.111 N1, pages 38-44

Mössbauer study of the process of the room-temperature aging of the alloy Cu79Ni14Fe7

Pyataev A., Manapov R.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Mössbauer spectroscopy was used to investigate the initial stage of the phase separation in the quasi-binary system Cu79Ni 14Fe7 and the subsequent transformation of the alloy structures as a result of prolonged aging at room temperature. For describing the Mössbauer spectra of ferromagnetic particles, which appear upon the spinodal decomposition in a paramagnetic matrix, a model was proposed and approved, which uses particle-size distribution in the approximation of the generalized Lifshitz-Slezov-Wagner (LSW) model and of the linear decrease of the hyperfine field at the 57Fe nuclei in the near-surface layers of spherical particles. © 2011 Pleiades Publishing, Ltd.

http://dx.doi.org/10.1134/S0031918X11010108

Keywords

alloys, Mössbauer effect, spinodal decomposition